Bass Guitar Speaker Enclosures Manual
For All D Series Products
Covering All Models
In the XL, XLT and XST Lines

EDEN

THE LEADER IN BASS AMPLIFICATION.

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Eden D Series
Bass Enclosures
Operation Manual

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Foreword

Thank you for your purchase of an Eden D Series loudspeaker enclosure. This cabinet has been designed and constructed to give you years of trouble-free service. Please take the time to review this manual and to send in your warranty registration card.

We are proud that we are the only bass amplifier manufacturer to design, engineer and manufacture its own speakers and hi-frequency devices, all in our own facility. This not only gives us much greater quality control, we can also make exactly what we need for any given design. We design and engineer all of the individual loudspeakers and all of the enclosures to work well with each other so that the synergy of the overall design is greater than the sum of the parts.

We have used only AA void-free plywood in the construction of your enclosure. Other manufacturers may use C or D grade, which allows for voids and patches that can degrade over time, causing rattles, or fall apart completely. Your cabinet has been constructed using the finest craftsmanship. We use a special glue and use Dado and Rabbet interlocking joins to ensure you a lifetime of use. Your enclosure features massive internal bracing and has been computer designed and hand-tuned to perfectly match with our hand-built speakers and high-frequency drivers to ensure maximum transient response and best overall sound.

Please read this manual in its entirety before operating your new speaker system. Failure to do so could result in misuse or damage. We've taken the time to write it, which was a lot longer than the time it will take for you to read it. Help us help you by taking a few moments to learn how to properly use your new cabinet. You'll be glad you did!

CAUTION!

Your ears are your most important piece of equipment. Unfortunately, they cannot be replaced as easily as your other gear. Please take the following warning seriously.

This product, when used in combination with amplification and/or additional loudspeakers may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate at high volume levels or at a level that is uncomfortable. If you experience any discomfort or ringing in the ears or suspect hearing loss, you should consult an audiologist.

Thank you for your purchase of an Eden bass guitar product. This unit has been designed and constructed to give you years of trouble-free service.

Please take the time to review this manual and to send in your warranty registration card.

Please complete for your records:

Date of Purchase: _____

Model: _____

Serial Number: _____

Dealer: _____

OPERATING INSTRUCTIONS

As previously mentioned, Eden is the only bass amplifier manufacturer to design, engineer and build its own drivers. Designing and building our own speakers and high-frequency drivers allows us an opportunity to create far greater synergy between our drivers and cabinets than any other manufacturer can achieve. We can create several speaker and/or cabinet prototypes and then test them together to find the best possible combination. No other manufacturer has this capability, which is why no other manufacturer can equal Eden's sound and reliability.

Eden loudspeakers feature a cast frame (except for the EC1560ES in our D-215XL(T) cabinet) and edge-wound voice coils. Our horn-loaded, cast aluminum bullet tweeter is the standard in the industry. We use a 6/18db crossover with level control, as well as a finely calibrated limiter for protection in high-volume situations.

TYPES OF ENCLOSURES

We manufacture a broad array of enclosures to ensure the every bassist on the planet can find the perfect cabinets to match his or her playing style and personal tonal requirements. Our enclosures are grouped into the product lines outlined below. Each product group has its own tonal characteristics. For complete specifications on your particular cabinet, refer to Appendix A at the end of this manual.

XLT SERIES

This is our best-selling line of speakers, with numerous models from which to choose. The XLT series cabinets have a low-mid bump that gives them their authoritative growl. This helps the bass cut through even the muddiest mix. Our D410XLT is the touring standard around the world. Product offerings in this group include:

Model	Impedance	RMS power handling
D410XLT	4 or 8 ohms	700w
D210XLT	4 or 8 ohms	350w
D210MBX	8 ohms	350w
D212XLT	4 or 8 ohms	400w
D112XLT	8 ohms only	250W
D115XLT	8 ohms only	400w

XL SERIES

For those desiring a cabinet with less highs and more of an old-school or traditional tone, we offer the XL series. These are the same as our XLTs except they have no high-frequency driver. Available in single or dual 15, and single 18 configurations, these cabinets are an excellent choice for bassists desiring a cabinet steeped in the tradition of 60s and early 70s.

XST SERIES

Our newest line of enclosures, the XST series features a deeper bottom end that is tighter and more focused, combined with a smoother midrange. These cabinets were designed with the hi-fi, hi-tech player in mind. They are also excellent for Pedal and Synth bass, as well as keyboards. Currently there are two models in the XST line:

610XL	6 ohm	1050w
410XST	8 ohms only	1000w
210XST	4 or 8 ohms	500w

BASIC CONNECTIONS AND OPERATION

There are three speaker connections on the connection panel: two standard _ inch jacks and one NL4 connector. These connections are all wired together in parallel. This means that any of the connections can accept the input from your amplifier and that the remaining two connections can be used to connect to additional speaker cabinets if desired.

NEVER CONNECT TWO AMPLIFIERS TO ONE CABINET!

Let us repeat this: NEVER connect two amplifiers, or two channels of the SAME amplifier, to one cabinet. This is a **Very Bad Thing** which will damage your amplifiers and possibly the enclosure. It may also result in an impressive pyrotechnical display – ***once***.

You should make all your connections before turning your amplifier on. Standard _ inch plugs are less than ideal in their ability to transfer the signal from your amplifier. This is due to the limited amount of actual contact area in these connections. For best performance, we recommend using NL4 style speaker connectors. We also recommend using high quality speaker cables of at least 16 gauge min. (smaller numbers indicate larger cable).

IMPROTANT NOTE: Using a shielded instrument cable to connect your amplifier and speakers is a **Very Bad Thing**. DO NOT use shielded instrument cable for speaker connections unless you want to cause serious damage to your amplifier.

TWEETER LEVEL CONTROL

The Tweeter Level control is located on the connection panel on the back of your cabinet. In general we recommend you initially set the control to its 12:00 (or flat) position. Users who aren't used to having a tweeter in their bass enclosure may want to turn the tweeter down to the point that it is barely operating and, over time, slowly adding more tweeter into the mix.

The rear (inside) of the connection panel also houses the crossover and tweeter protection system. This system uses an aircraft-grade light bulb in a circuit that is designed to absorb current that is in excess of the power-handling ability of the tweeter.

In cases of very high levels of high frequency information (such as feedback from facing the cabinet with your instrument turned up), the bulb can glow brightly enough to illuminate the interior of the cabinet and shine through the speaker surrounds. While this is a rather dramatic display of the protection circuit, it should not be done intentionally. It's much better to find another way to impress your drummer!

Excessive amounts of current will cause the bulb to act like a fuse and fail, requiring replacement before the tweeter will function. Replacement bulbs are available from our factory. In an emergency, an automobile dome light bulb can be used to restore the system. To replace the bulb, simply remove the screws that secure the connection plate to the back of the cabinet. Gently pull the plate out and replace the bulb in its connection clips.

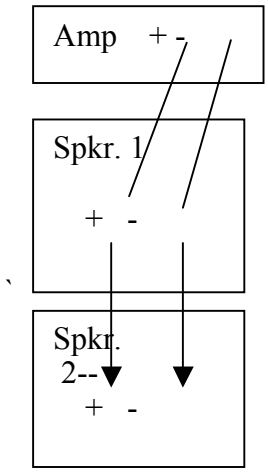
BREAK-IN PERIOD

We recommend that you use your D Series cabinet at low to moderate volume levels for approximately ten hours before using it in a high volume situation. This will allow the suspension components to "seat" themselves and the speaker to break in. This is very similar in concept to breaking in the engine of a new car. It will actually take about 24 to 50 hours of total playing time to fully break in your speaker system. If desired, you can plug a CD player into your amplifier and play a CD through your enclosure to accomplish this break-in.

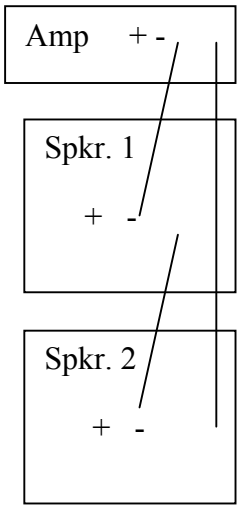
CONNECTIONS WITH ADDITIONAL CABINETS

It is important to keep two issues in mind when connecting your David Series cabinet with other cabinets: phase relationships and impedance. Proper parallel connections require the positive and negative speaker terminals to maintain their relationships throughout the system. This means that the positive connection (tip on _ in. plugs; the red binding post) on one cabinet must connect to the positive connection on additional cabinets. The negative connections should be made in a similar manner. Unless you have defective cables, _ in. connections make incorrect connections highly unlikely. If you are using NL4 plugs to connect there should also be not problem with phase relationships. If you wish to connect multiple cabinets in SERIES, you will need to use special single wire cables with individual banana plugs, attaching them to the cabinets as shown below. (You can purchase _-banana adapters for this purpose, if necessary.)

Parallel Connection



Series Connection



Impedance is a measure of the load your speaker system places on your amplifier. Too great a load (indicated by a lower impedance figure) can damage your amplifier. Too small a load (indicated by a higher impedance figure) can fail to draw adequate power from your amplifier. Please consult your amplifier manufacturer's literature for impedance recommendations. We hope this means you'll be consulting another one of our manuals, by the way. If this is not the case, may we humbly suggest you trade up to a better amplifier?

When you connect speakers in parallel, the load increases as shown below:

Parallel speaker configurations	Total system impedance
Two 8 ohm cabinets	4 ohms
One 8 ohm cabinet and one 4 ohm cabinet	2.6 ohms
Two 4 ohm cabinets	2 ohms
Three 8 ohm cabinets	2.6 ohms
Two 8 ohm cabinets and one 4 ohm cabinet	2 ohms
One 8 ohm cabinet and two 4 ohm cabinets	1.6 ohms

When you connect speakers in series, the load decreases as shown below:

Series speaker configurations	Total system impedance
Two 8 ohm cabinets	16 ohms
One 8 ohm cabinet and one 4 ohm cabinet	12 ohms
Two 4 ohm cabinets	8 ohms
Three 8 ohm cabinets	24 ohms
Two 8 ohm cabinets and one 4 ohm cabinet	20 ohms
One 8 ohm cabinet and two 4 ohm cabinets	16 ohms

As you can see, problems tend to arise when using more than two cabinets. In these cases, a combination of parallel and series wiring may be helpful.

Speaker configurations	Total system impedance
Two 4 ohm cabinets in series plus one 8 ohm cabinet in parallel.	4 ohms
Two 8 ohm cabinets in parallel plus one 4 ohm cabinet in series	8 ohms

POWER HANDLING

Your speaker system can be damaged by too much or too little amplifier power. While the amount of amplifier power reflects the potential for damage, how that power is used (your playing style) is the critical variable. Too small an amplifier, when pushed to its limit too often, can generate excessive clipping. This can generate a signal with enough extra high frequency distortion to eventfully overheat and burn up a voice coil. Too large an amplifier, when pushed near its limit, can push the speaker beyond its physical limits. Your playing style determines how much headroom (reserve amplifier power needed to handle short bursts of sound) you will need. Slap style playing is particularly demanding, as short bursts of low frequency information require a great deal of power to be produced accurately without distortion. You should choose an amplifier that delivers adequate power for your playing style without frequent clipping and without exceeding the cabinet's power handling maximum during normal usage. It is OK to have extra power for added headroom. Just be careful to use it for that purpose.

Also, keep in mind that simply adding amplifier power will not necessarily increase your volume significantly. The addition of more speakers will usually have more impact on your overall volume level and improve your overall presence and tone.

CABINET PLACEMENT

The placement of your cabinet can also have an impact on the amount of bass it produces. Placing the unit on the floor increases the amount of Bass you get by an additional +3dB . With each additional wall surface placement you get another 3 dB increase. This is due to the reinforcement of bass frequencies by the adjacent surfaces.

The absence of reinforcing surfaces is the reason why outside settings are so problematic for bass amplification. A system that may be perfectly adequate in a fairly large club can be rather disappointing on an outdoor stage. If you have plans to perform in such a setting and are not confident that the P.A. system can provide you with sufficient reinforcement (both out front and via monitors), you should consider using additional equipment to support your own sound.

MAINTENANCE

Your speaker system is designed to be trouble-free and to require very little maintenance. You should remember that the weakest links in most systems are the solderless connection points where your plugs and jacks come together. These connections are quite vulnerable to contamination and /or corrosion, which can lead to **Wimpy Bass Tone**. And if you wanted that, you wouldn't have bought an Eden speaker system, now would you?

Your input jacks, as well as your speaker cable plugs, should be periodically cleaned using a cotton swab with a solvent such as denatured alcohol. On cabinets equipped with casters, you should check to make sure that the screws the hold the caster sockets in place are tight.

IMPORTANT NOTE: Speakers are not waterproof. The cones themselves are made of special high-strength paper. If your speakers get wet, make sure they dry out completely before using them again. If you do not, you may cause mechanical damage to the speaker, and this is a **Very Bad Thing**.

You can keep the carpet covering on your enclosure clean by using a Lint Roller (the masking tape style). If you need to remove ground-in dirt, use a commercially available carpet cleaner. Make sure, however, to protect the connection panel and speaker grill during cleaning.

To remove the odor of airborne contaminants (smoke, e.g.) or the beer your drummer spilled on your cabinet during the last gig, use a commercially available fabric freshening spray.

CLIMATE AND TRANSPORTATION

Routine temperature extremes (such as cold garages) will not harm your Eden cabinet. You should, however, allow the system to adjust to room temperature before playing it at loud volumes. If your cabinet is going to be bounced around severely during transportation, it is best to avoid loading it with the speaker cones facing down, as this puts added stress on the screws that secure the speakers in the cabinet.

THE MAGIC SMOKE

Few people realize just how much magic goes into creating **Great Bass Tone**. It isn't something you normally need worry about. Just have fun and leave all that to us. However – *and this is very important* – if you ever release the Magic Smoke from your speaker, this is indeed a **Very Bad Thing**, perhaps the worst thing you can do. If you see any smoke (Magic or otherwise) coming out of your cabinet, immediately turn it off and seek the services of a qualified magician…uhm, we mean…technician. **DO NOT continue to use the speaker system in this condition**.

LEARN MORE

If you'd like to learn more about your speaker system (or about our company and its activities), we invite you to visit our website – eden-electronics.com. There you'll find articles to help you better understand our products and the technical stuff some people find so interesting. You'll also find our FAQ (Frequently Asked Questions) file, which is updated regularly.

While you're there, check out our on-line forum. There you can meet hundreds of other Edenites who'll be glad to help you with any questions you may have about our gear. Not to brag too much, but we think our forum is a **Really Neat Thing**, filled with **Really Neat People**. We're pretty sure you'll think so, too.

SERVICE

In the event of speaker malfunction, or questions about your unit's operating features that aren't answered in this manual or on our website, you should contact your Dealer. Once you and your dealer have determined it's definitely a malfunction (and not an operator error) you must call our Customer Service Department and **obtain a Return Merchandise Authorization (RMA)**. We WILL NOT accept any gear sent without an RMA, so save the time and money by calling first, ok?

Please contact the USM Customer Service Dept. at:

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Eden Never Compromise

Note for those who care: This manual was written by David (Eden) Nordschow, Eden's Chief Propellerhead & Master of All Things Technical, and Lane Baldwin, Eden's Special Projects Coordinator (Many Other Functions). Any grammar errors are David and Lane's fault, as are the attempts at humor. Please don't blame anyone else for any weirdness, as we were warned several times. Really.